WHAT IS CLAIMED IS:

1. A method of forming a connecting rod, comprising:

providing a connecting rod blank having:

a rod section disposed between a big end and a small end;

the big end having a first hole generally sized to receive a crankpin of a crankshaft and at least a second hole generally sized to receive a bolt, the axes of the first and second holes being generally normal to each other, the big end also having a dividing plane that extends through both the first and second holes;

hardening at least the big end to a sufficient depth such that at least a first region of the big end, which lies between the first and second holes at the dividing plane, is hardened while leaving a substantial second region of the big end at the dividing plane generally unhardened; and

controlling at least a process hardening parameter so as to produce a hardened surface layer of a predetermined depth that is greater than one half of a smallest wall thickness between the walls of the first hole and the second hole; and

splitting the big end along the dividing plane to produce a rod part fracture surface and a cap part fracture surface.

2. The method of Claim 1, wherein controlling involves controlling temperature and exposure time so as to produce a hardened surface layer of a predetermined depth that is greater than one half of a smallest wall thickness between the walls of the first hole and the second hole.

3. A method of forming a connecting rod, comprising:

providing a connecting rod blank having:

a rod section disposed between a big end and a small end;

the big end having a first hole generally sized to receive a crankpin of a crankshaft and at least a second hole generally sized to receive a bolt, the axes of the first and second holes being generally normal to each other, the big end also having a dividing plane that extends through both the first and second holes;

hardening at least the big end to a sufficient depth such that at least a first region of the big end, which lies between the first and second holes at the dividing

plane, is hardened while leaving a substantial second region of the big end at the dividing plane generally unhardened; and

splitting the big end along the dividing plane to produce a rod part fracture surface and a cap part fracture surface.

4. The method of Claim 3, wherein hardening comprises case hardening followed by tempering.

5. The method of Claim 3, wherein hardening comprises case hardening followed by tempering without applying a carbon preventing treatment to the big end.

6. The method of Claim 3, wherein hardening involves producing a higher carbon content in the first region than in the second region.

7. The method of Claim 3, wherein splitting produces rod part fracture surfaces and cap part fracture surfaces, and each fracture surface comprises a grain boundary fracture surface and an elongation boundary fracture surface.

8. The method of Claim 3, wherein a connecting rod blank comprising carbon steel or case hardening steel is provided.

9. The method of Claim 3, wherein hardening involves controlling temperature and exposure time so as to produce a hardened surface layer of a predetermined depth that is greater than one half of a smallest wall thickness between the walls of the first hole and the second hole.

10. The method of Claim 3, wherein hardening involves controlling at least a process hardening parameter so as to produces a hardened surface layer of a predetermined depth that is greater than one half of a smallest wall thickness between the walls of the first hole and the second hole.

11. A method of forming a connecting rod, comprising:

providing a connecting rod blank having:

a rod section disposed between a big end and a small end;

the big end having a first hole generally sized to receive a crankpin of a crankshaft and at least a second hole generally sized to receive a bolt, the axes of the first and second holes being generally normal to each other, the big end also having a dividing plane that extends through both the first and second holes;

hardening at least the big end to a sufficient depth such that at least a first region of the big end, which lies between the first hole and an outside end surface

of the big end at the dividing plane, is hardened while leaving a substantial second region of the big end at the dividing plane generally unhardened; and

splitting the big end along the dividing plane to produce a rod part fracture surface and a cap part fracture surface.

12. The method of Claim 11, wherein hardening involves controlling temperature and exposure time so as to produce a hardened surface layer of a predetermined depth that is greater than one half of a smallest wall thickness between the walls of the first hole and the outside end surface of the big end.

13. A method of forming a connecting rod, comprising:

providing a connecting rod blank having:

a rod section disposed between a big end and a small end;

the big end having a first hole generally sized to receive a crankpin of a crankshaft and at least one second hole generally sized to receive a bolt, the axes of the first and second holes being generally normal to each other, the big end also having a dividing plane that extends through both the first and second holes; and

a tab a with predetermined thickness disposed along the dividing plane;

hardening at least the big end to a sufficient depth such that at least the tab is hardened while leaving a substantial portion of the big end at the dividing plane generally unhardened; and

splitting the big end along the dividing plane to produce a rod part fracture surface and a cap part fracture surface.

14. A method of forming a connecting rod, comprising:

providing a connecting rod blank having a rod section disposed between a big end and a small end, the big end having a dividing plane that generally bisects the big end;

hardening at least the big end to a predetermined depth; and

splitting the big end along the dividing plane to produce a grain boundary fracture surface and an elongation fracture surface;

wherein the predetermined depth of hardening is selected so as to produce a ratio of the elongate fracture surface area to the sum of the elongate fracture

surface area and the grain boundary fracture surface area that is between about 0.3 and about 0.7.

15. The method of Claim 14, wherein the predetermined depth of hardening is selected so as to produce a ratio of the elongate fracture surface area to the sum of the elongate fracture surface area and the grain boundary fracture surface area that is between about 0.4 and about 0.6.

16. The method of Claim 14, wherein the predetermined depth of hardening is selected so as to produce a ratio of the elongate fracture surface area to the sum of the elongate fracture surface area and the grain boundary fracture surface area that is about 0.5.

17. A method of forming a connecting rod, comprising:

providing a connecting rod blank having:

a rod section disposed between a big end and a small end;

the big end having a first hole generally sized to receive a crankpin of a crankshaft and at least one second hole generally sized to receive a bolt, the axes of the first and second holes being generally normal to each other, the big end also having a dividing plane that extends through both the first and second holes;

hardening at least the big end to a sufficient depth such that along the dividing plane a first section of the big end is hardened and a second section of the big end is generally unhardened;

applying a separating force generally along the dividing plane such that the resulting stress produced in the vicinity of the first section that is higher that the resulting stress produced in the vicinity of the second section; and

splitting the big end along the dividing plane to produce a rod part fracture surface and a cap part fracture surface.

18. A connecting rod, comprising:

a small end;

a big end including a rod part and a cap part separable from the rod part, the rod and cap parts having mating faces; and

a rod connecting the rod part of the big end to the small end;

each of the mating faces, including:

an outer perimeter and a void;

a first surface comprising material that is hardened and a second surface comprising material that is generally unhardened;

a section between the outer surface and the void comprising hardened material; and

a hardened surface layer of a generally constant depth that is no greater than one half of a smallest wall thickness between the walls of the outer perimeter and the void.

19. A connecting rod, comprising:

a small end;

a big end including a rod part and a cap part separable from the rod part, the rod and cap parts having mating faces; and

a rod connecting the rod part of the big end to the small end;

each of the mating faces, including:

an outer perimeter and a void;

a first surface comprising material that is hardened and a second surface comprising material that is generally unhardened;

a section between the outer surface and the void comprising hardened material.

20. The connecting rod of Claim 19, wherein the first surface comprises a grain boundary fracture surface and the second surface comprises an elongation fracture surface.

21. The connecting rod of Claim 20, wherein the ratio of the elongate fracture surface area to the sum of the elongate fracture surface area and the grain boundary fracture surface area is between about 0.3 and about 0.7.

22. The connecting rod of Claim 20, wherein the ratio of the elongate fracture surface area to the sum of the elongate fracture surface area and the grain boundary fracture surface area is between about 0.4 and about 0.6.

23. The connecting rod of Claim 20, wherein the ratio of the elongate fracture surface area to the sum of the elongate fracture surface area and the grain boundary fracture surface area is about 0.5.

24. The connecting rod of Claim 19, wherein the first surface has a higher carbon content than the second surface.

25. The connecting rod of Claim 19, wherein the connecting rod comprises carbon steel or case hardening steel.

26. The connecting rod of Claim 19, further comprising a hardened surface layer of a generally constant depth that is no greater than one half of a smallest wall thickness between the walls of the outer perimeter and the void.

27. A connecting rod, comprising

a small end;

a big end including a rod part and a cap part separable from the rod part, the rod and cap parts having mating faces; and

a rod connecting the rod part of the big end to the small end;

a tab a with predetermined thickness intersecting the dividing plane, the tab comprising only hardened material;

each of the mating faces including a first surface comprising material that is hardened and a second surface comprising material that is generally unhardened;

the first surface including the portion of the tab intersecting the dividing plane.

28. A connecting rod, comprising:

a small end;

a big end including a rod part and a cap part separable from the rod part, the rod and cap parts having mating faces; and

a rod connecting the rod part of the big end to the small end;

each of the mating faces, including:

an outer perimeter and a void;

a first surface comprising material that is hardened and a second surface comprising material that is generally unhardened;

a section between the outer surface and the void comprising hardened material.